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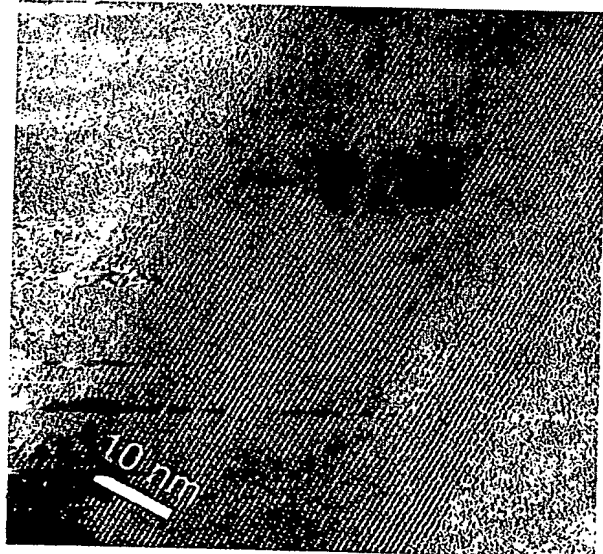
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(54) Title: PREPARATION OF METAL CHALCOGENIDES FROM REACTIONS OF METAL COMPOUNDS AND CHALCO-
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(57) Abstract: A method of preparing metal chalcogenides from elemental metal or metal compounds has the following steps: providing at least one elemental metal or metal compound; providing at least one element from periodic table groups 13-15; providing at least one chalcogen; and combining and heating the chalcogen, the group 13-15 element and the metal at sufficient time and temperature to form a metal chalcogenide. A method of functionalizing the surface of semiconducting nanoparticles has the following steps: providing at least one metal compound; providing one chalcogenide having a cation selected from the group 13 - 15 (B, Al, Ga, In, Si, Ge, Sn, Pb, P, As, Sb and Bi); dissolving the chalcogenide in a first solution; dissolving the metal compound in a second solution; providing and dissolving a functional capping agent in at least one of the solutions of the metal compounds and chalcogenide; combining all solutions; and maintaining the combined solution at a proper temperature for an appropriate time.

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